

IPAV Pro Series

10G AV over IP for Rental and Staging
Professional AV Extension, IP Switching & Signal Processing



IPAV Pro Series

Powerful Dependability

The IPAV PRO series combines revolutionary 10GbE IP switching technology with a toughened chassis custom made for rental and staging. Reliably distribution of uncompressed 4K in real time, with zero frame latency and pixel perfect image quality, in even the most demanding of conditions.



Adaptable Reliability

The IPAV PRO series provides complete on-site flexibility in a single device. Owning the IPAV PRO means always having the right tool for the job. From simple point-to-point extension over standard Cat.6A cable, to multi zone videowall and matrix switching over Neutrik Fiber cable – The IPAV PRO series expertly handles the task with ease.

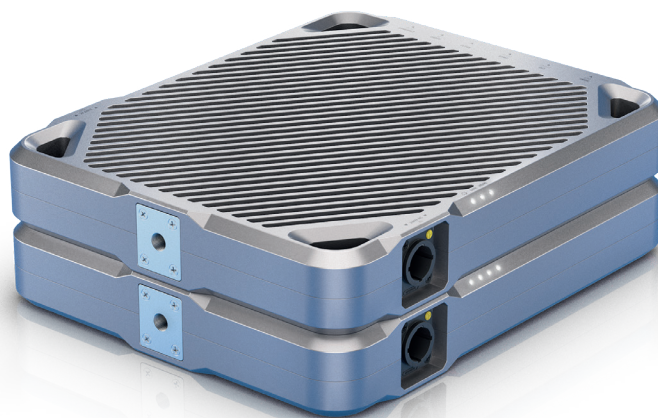
SDVoE™ – A Game Changing Industry Standard

SDVoE™ technology provides the platform that is necessary to enable true AV/IT convergence. With the advent of comparatively inexpensive 10GbE switching, cost effective I/O with superior quality, scalability and reliability, AV can finally share the same tried and tested infrastructure without compromise. The IPAV PRO series takes this revolutionary AV-over-IP technology, wraps it in a hardened shell and equips it with professional grade features for unique rental and staging applications.



BlueRiver™ - the Brains Behind the Brawn

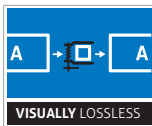
The SDVoE™ certified chipset by Semtech uses ubiquitous, IP-based network architecture for pixel transmission rather than bespoke proprietary technology often used in traditional matrix routers. BlueRiver™ chipsets can extend and independently switch video, audio, Gigabit Ethernet, and other control signals with zero latency using standard CAT and MM/SM fiber.





Benefits of BlueRiver™

BlueRiver™ AV over IP chipsets are the world's only chipsets able to transport uncompressed, zero latency Ultra HD/4K HDR over standard Ethernet and are the foundation of the "Software Defined Video over Ethernet" (SDVoE™) technology. Using a synchronous, packet-based architecture for pixel transmission, BlueRiver™ can extend and independently switch video, audio, Gigabit Ethernet, and other control signals through off-the-shelf Ethernet switches. Combined with the BlueRiver™ Application Programming Interface (API), the BlueRiver™ chipsets provide a hardware/software platform for SDVoE™ products, supporting applications such as matrix switching, control signal distribution and video processing.



Transport Performance

- End-to-end latency under 100 microseconds (less than 1/100 of a frame)
- Video is uncompressed for all bandwidths below 10Gbps
- Compression is ultra-lightweight, 1.41:1 ratio and 100% artifact-free



Video Interfaces

- HDMI 2.0, supporting all resolutions up to 594 MHz
- 4K / 60 Hz / RGB and 4:4:4 8-bit
- 4K / 60 Hz / 4:2:2 10-bit for broadcast and medical applications
- 4K / 60 Hz / 4:2:0 10-bit and 12-bit HDR



Audio Interfaces

- I2S stereo I/O and I2S multi-channel I/O supporting all formats in HDMI 2.0, including: multi-channel PCM, Dolby True HD, DTS-HD Master Audio

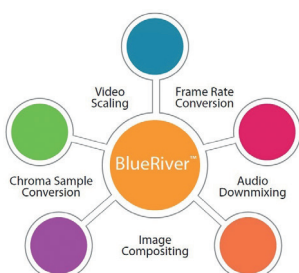


Transmission Distance

- Up to 100 meters with standard Cat.6A (and above) cabling
- Up to 300/550 meters with Multi-Mode OM3/OM4 fiber
- Up to 30 km with Single-Mode fiber (MM STP+ fitted as standard)

BlueRiver™ AV Processor

- Broadcast-quality upscaling and downscaling
- Color space, chroma sub-sampling, and frame-rate conversion
- Videowall with synchronized outputs and bezel correction
- Multichannel PCM down-mixing
- Independent routing of audio, RS232 and Gigabit Ethernet



IPAV Pro Series

The Omni-Tool

By combining transmitters (input-node) and receivers (output-node), the IPAV PRO series is able to mimic and improve any function of all common AV distribution products. Thus, the IPAV PRO product family is the only product range ever needed for a professional, scalable AV distribution.



Extender

In a point-to-point configuration, there is no need for a switch. Distribute full bandwidth data up to 4K60 4:4:4 resolution as well as 1G Ethernet, audio and control signals over IP. Surpass the limitations of other technologies.

Splitter

With only one transmitter and a 10G Ethernet switch, any A/V signal can be flawlessly and instantly distributed to a near limitless number of receivers and screens, any number of times.

Switcher

Use only one receiver, as well as a 10G Ethernet switch to distribute an unlimited number of sources to a single screen. The number of sources is limited only by the number of 10GbE ports available.





Key Features of the IPAV PRO Family

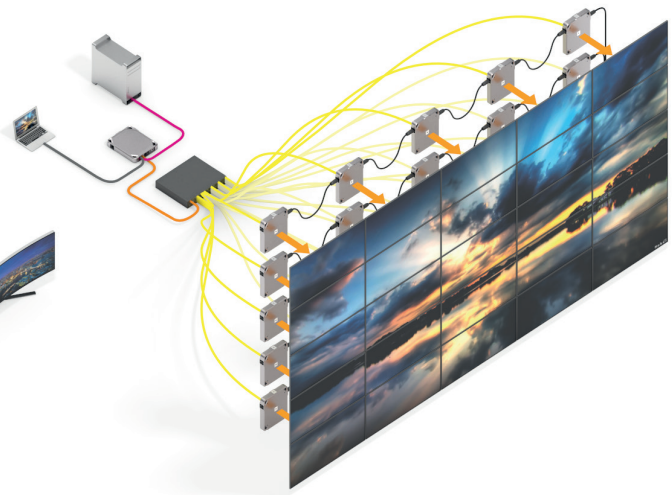
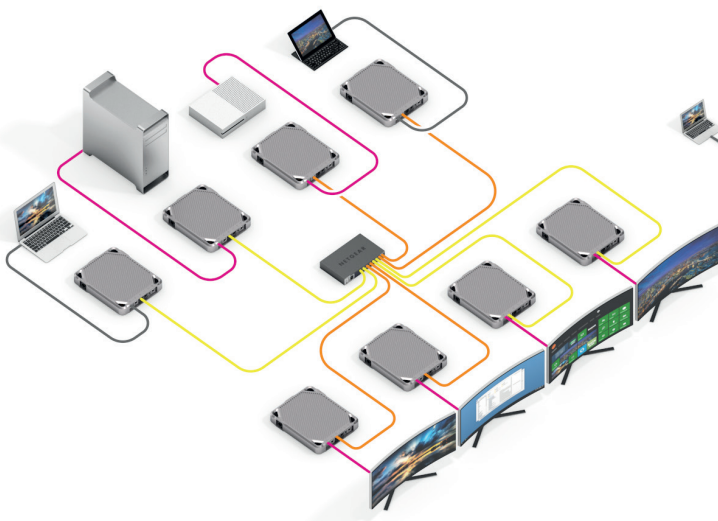
- Scalable AV distribution only limited by the number of 10GbE ports available
- Full 4K@60Hz 4:4:4 bandwidth transmission incl. HDR
- Full HDCP version support
- Dual switchable inputs, HDMI 2.0 or DisplayPort 1.2
- Designed for 24 / 7 / 365 applications
- Seamless switching and visually lossless transmission with zero frame latency
- Three adaptable video switching modes – Genlock, Fast Switch, Genlock Scaling
- Transmission via Cat.6A (100m), Multi-Mode fiber (300m) or Single-Mode fiber (30km)
- Broadcast quality up and down scaling
- Up to 5x5 video wall processing with comprehensive software management incl. bezel correction
- Balanced audio embedding / de-embedding and PCM down mixing
- Independent switching of video, audio, 1G Ethernet, and control signals
- Unique range of task specific form factors – Rugged chassis, as 19" / 1U rack version or openGear card

Matrix

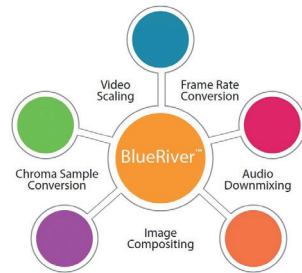
The combination of switching and splitting enables a completely scalable matrix system. Independently route video, audio, IR and control signals from any source to any endpoint. The IPAV PRO series allows for on-the-fly upgrading and a virtually unlimited number of I/O devices.

Video Wall

Create and manage video walls in setups up to 5x5 screens. The IPAV PRO product line features full bezel correction and instant seamless switching of full bandwidth source material as well as further innovative features for video wall management.



IPAV Pro Series



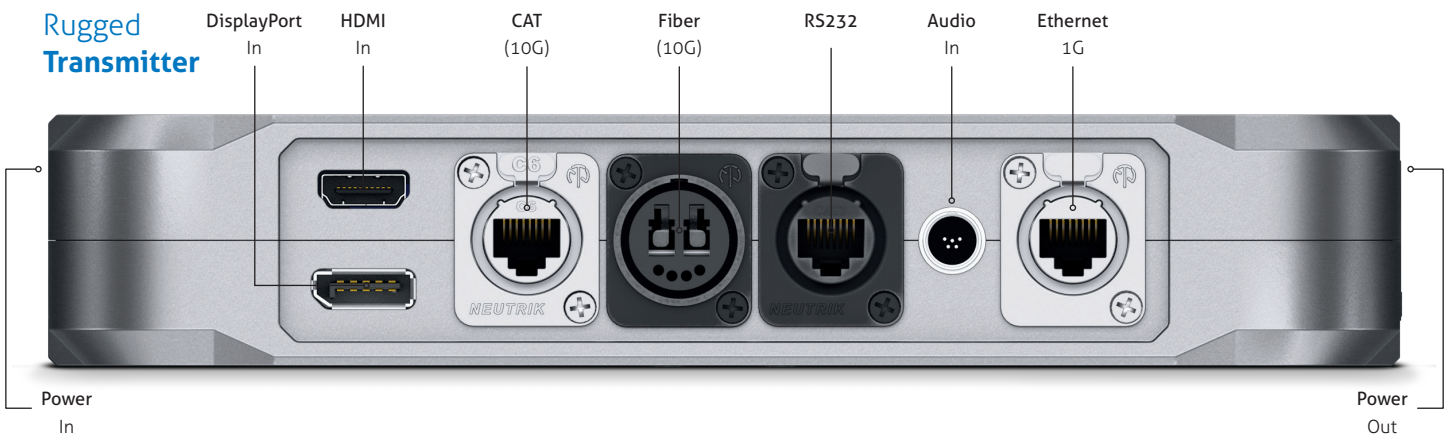
World's first dual signal transmission SDVoE™ compliant transmitter and receiver - fiber and copper on a single SKU – leveraging full 10GbE switch technology for true professional AV/IT convergence.

Zero frame latency, seamless switching and visually lossless reproduction of source signals up to 4K@60Hz 4:4:4 without artifacts. Uncompressed data transmission up to 10Gbps – Minimal, lossless compression ratio (1.41:1) at higher data rates.

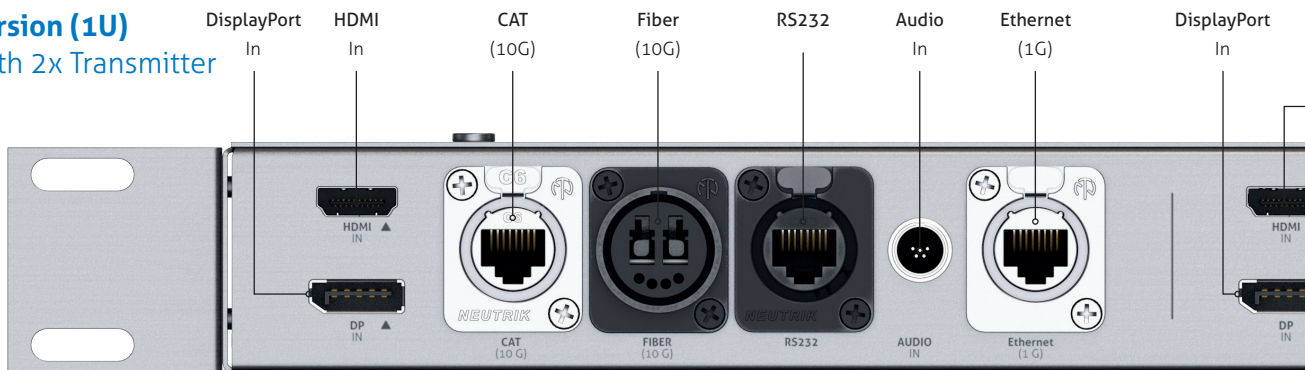
NEUTRIK

The IPAV PRO series comes with a full set of robust professional field connectors including etherCON Cat6A, opticalCON DUO and powerCON® TRUE1, fitted to recessed connector panels, for superior plug protection and connection. For additional durability and ease of part replacement, each individual panel mount connection is separated from the main PCBA. This modular port construction allows for simple and cost-effective field repair.

Rugged Transmitter



19" Rack-version (1U) equipped with 2x Transmitter

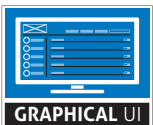




Omni functionality for all conceivable AV applications – Extender, switcher, splitter, matrix and video wall. Embed, de-embed and downmix all audio independently and route TCP/IP & RS232 to any endpoint.



Rugged, CNC-milled aluminium housing for the toughest and most unforgiving environments with automotive standard scratch resistant outer coating and clear port labelling.



User friendly device management and switching software – no need to purchase an additional control box. Includes auto device discovery mode to instantly recognize any endpoint and immediately start streaming data – no intensive setup or IT background required.

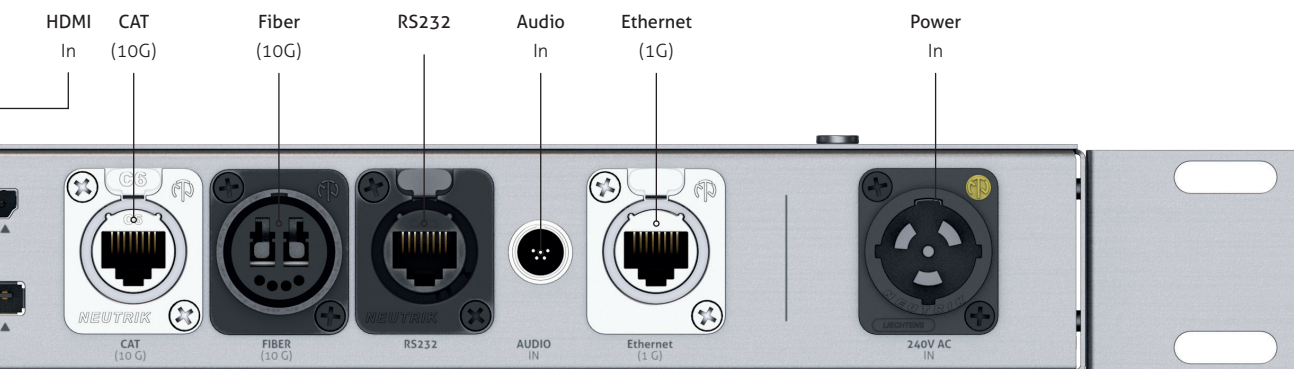
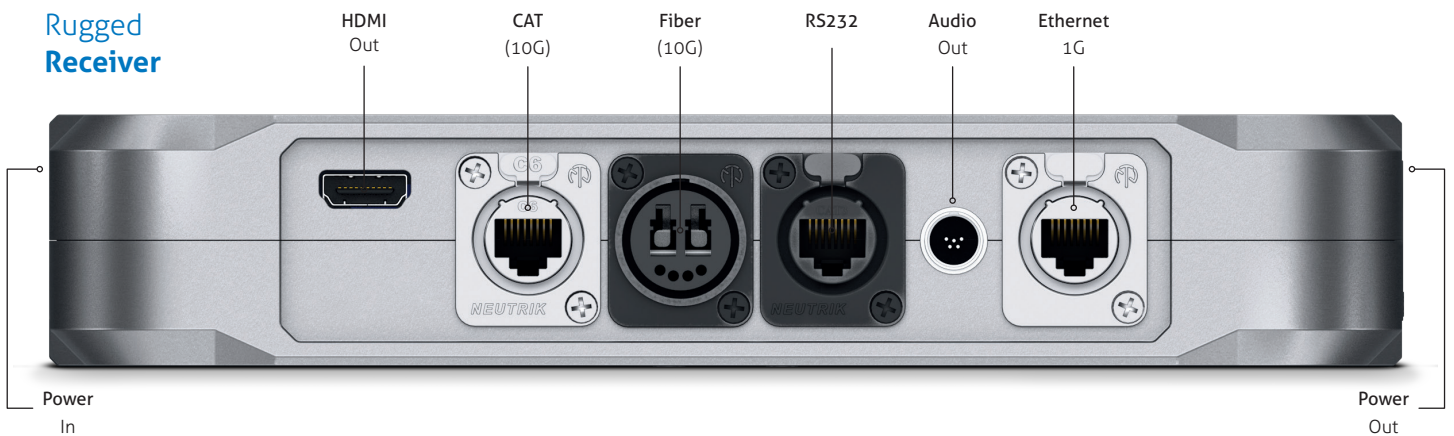


On board daisy-chainable power supply featuring AC mains power input & output. Equipped with powerCON TRUE1 connectors for powering almost any 3rd-party device or further transmitters / receivers in the same system.

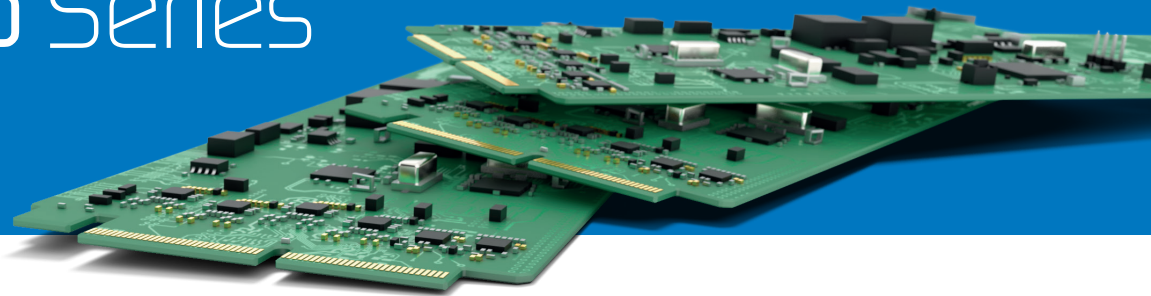


Enhanced moisture and dust ingress rating with fanless heat management, oblique angled status LEDs for easier on-site debugging, dual truss clamp mounting holes in the x / y planes and four safety strap holes.

Rugged Receiver

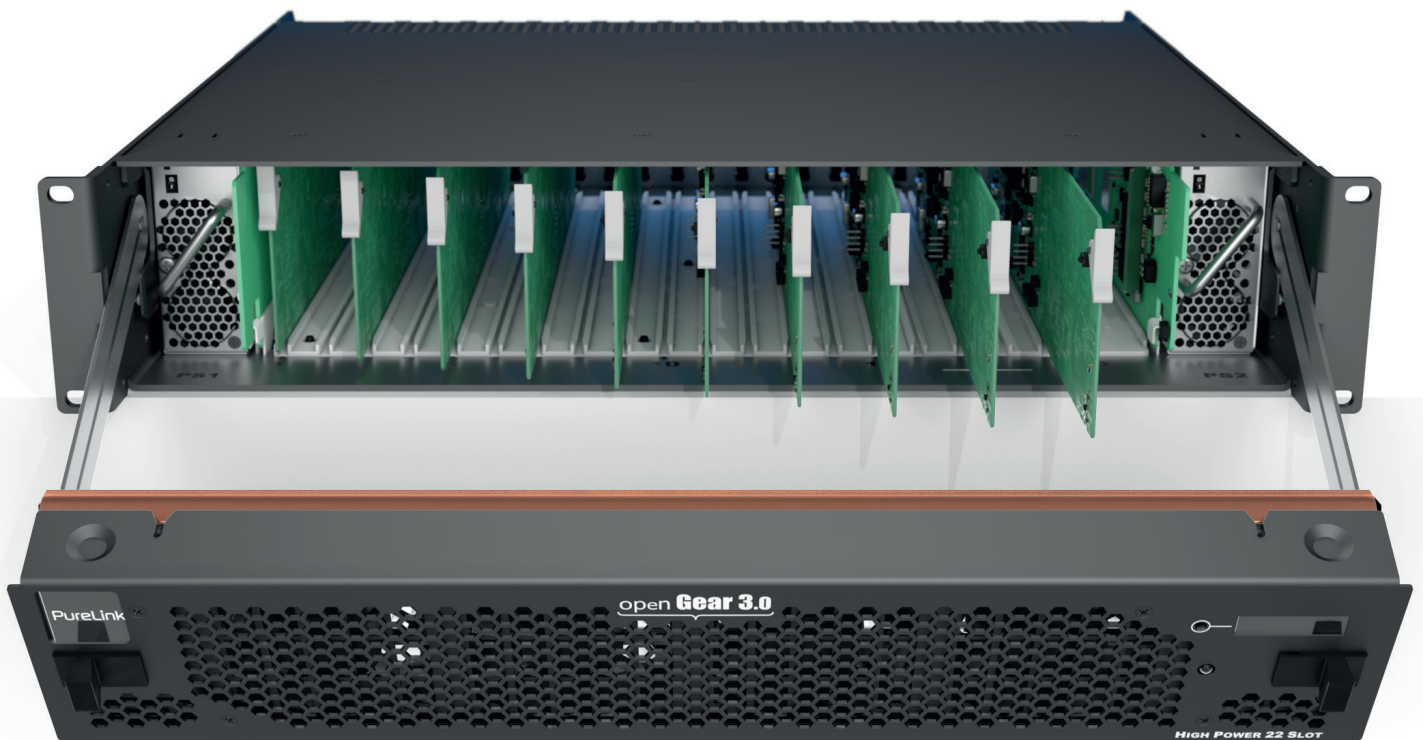


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openGear, the Industry Standard Platform of Choice

openGear is an open-architecture, modular frame system, supported by a diverse range of terminal equipment manufacturers. The platform offers the freedom to choose technology for broadcast, production or distribution while maintaining a compatible openGear frame infrastructure. Using the openGear concept, the IPAV-PRO family provides an SDVoE™ compliant device with ultra high density I/O in a standard 19" rack which was previously unavailable to the industry.



Benefits of openGear's open-source Infrastructure

- Modular and scalable card design for 24/7 applications
- Any openGear compatible card can be loaded into the 19" openGear rack
- High density system design - Up to 9 input / output nodes ports per 2RU
- Redundant Power Supply with a primary and secondary PSU on either side for ease of rack management
- Heat management - Integrated fans for optimal operating temperatures and improved reliability
- Easy-access, fold-down front panel for simplified card maintenance and / or replacement

Coming in Q4 2018!

Specifications

Transmitter / Receiver Inputs and Outputs	
Input Transmitter	1x HDMI, 1x DisplayPort, 1x Balanced Audio (Mini 5 pin XLR), 1x RS232 (RJ11), 1x etherCON (Cat.6A Neutrik D-Type)
Output Transmitter	1x opticalCON DUO (D-Type Neutrik), 1x etherCON (Cat.6A Neutrik D-Type)
Input Receiver	1x opticalCON DUO (D-Type Neutrik), 1x etherCON (Cat.6A Neutrik D-Type)
Output Receiver	1x HDMI, 1x Balanced Audio (Mini 5 pin XLR), 1x RS232 (RJ11), 1x etherCON (Cat.6A Neutrik D-Type)
A/V Characteristics	
Standards	HDMI 2.0, HDCP 1.4 / 2.2, HDR 10, HDR 12 and Dolby Vision incl. RGB, YCbCr 4:4:4, CEC, EDID
Bandwidth	18Gbps (6 Gbps / color) / 594 MHz
Resolution	Up to 4K / UltraHD / 2160p (4096x2160) @60Hz, 4:4:4 as well as HDR up to 12-bit
Supported Audio	I2S stereo I/O and I2S multi-channel I/O supporting all formats in HDMI 2.0, including: multi-channel PCM, Dolby True HD, DTS-HD Master Audio
Transmission Mode	10GBaseT Cat.6A (PHY), Multi-Mode Fiber (SFP+ module) - Fitted as standard, Single-Mode Fiber (SFP+ module) - Available on request
Scaling	Integrated up/down Scaler in Receiver Module
Transmission Distance	100m via 10G Cat.6A 300m via 10G Multi-Mode Fiber 30km via 10G Single-Mode Fiber
General	
Status LED	Power, HDMI, DP and Sync Status
Latency	Genlock Mode: Less than 30µs Compressed: Max. 120µs
Operation/Storage Temperature	-40 ~ 85°C / -10 ~ 60°C
Humidity	0% ~ 90%
Power Supply	PowerCON TRUE1 240/110VAC In and Out
Power Consumption	Approximately 15 watts
Dimensions (WxHxD)	Rugged Version: 240 x 290 x 44mm, 2.8kg each
Net Weight	19", 1U Rack Version: 482.6 x 44.45 x 300mm openGear card: 350 x 76 x 1.5mm
Safety	CE, REACH, ROHS
Warranty	1 year, service contract with optional extension

A whole range of compatible accessories is available upon request.

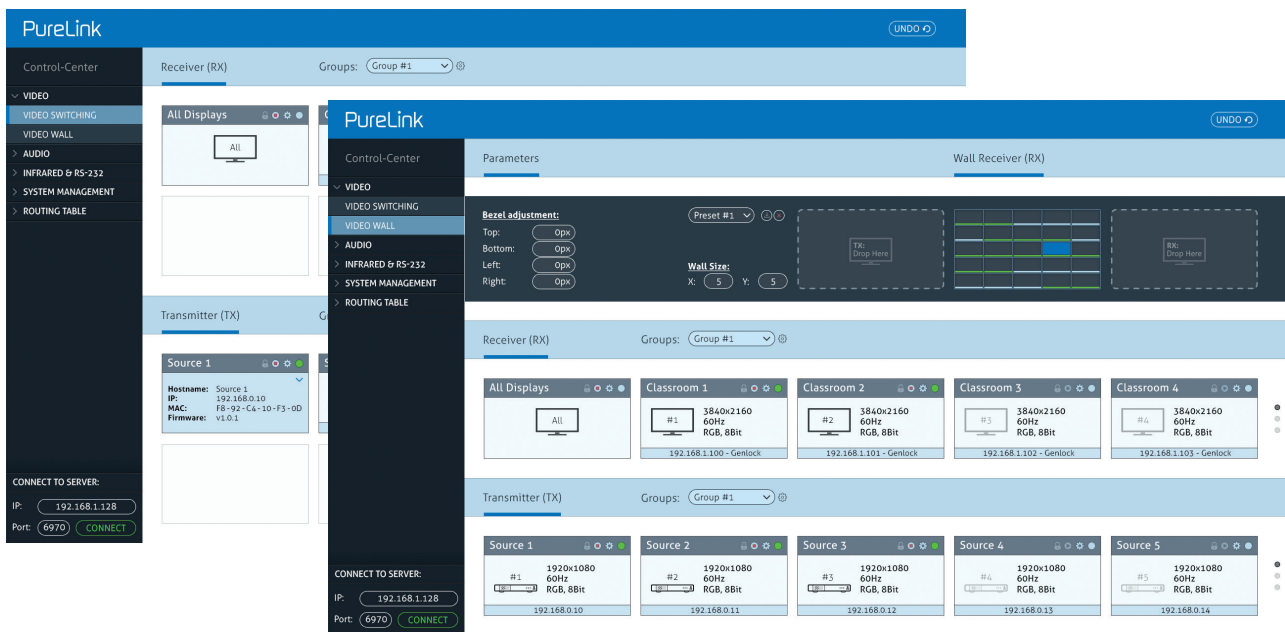
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Software Overview

Semtech's unique BlueRiver™ platform enables complete system control from one Windows 7 (or later) compatible PC, running the management software.

To manage the whole infrastructure, the controlling PC can be connected either to the 10GBaseT network switch or the Gigabit port of a IPAV PRO transmitter / receiver.

The control software offers a graphical overview over all the connected source and display devices including their respective stream information like resolution, refresh rate as well as the exact transmitter and receiver settings.

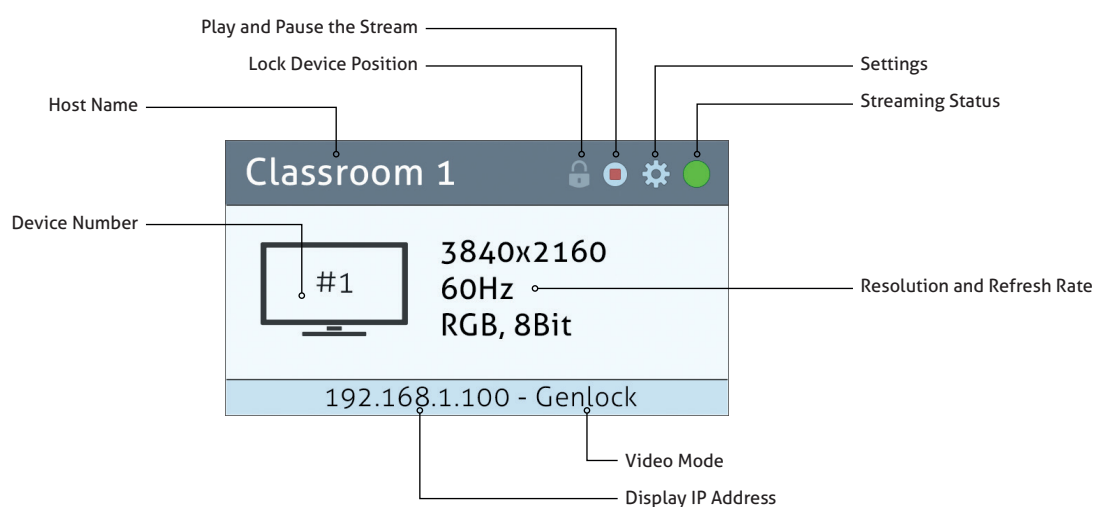


Key Software Features:

- Auto device discovery enables Plug&Play capability, no manual setup needed
- Password protected login screen for safe device management
- Status monitoring incl. IP address, port, connection status, video mode, etc.
- Audio distribution and downmix: Any Rx can either output the (max. 8ch) original audio stream embedded in the output signal or a 2ch stereo downmix on the analogue port
- Group several devices for easy zone management
- Backup & Restore settings
- RS232 control of any connected 3rd party device via console command line input
- Remote firmware updates
- "System Log" view for troubleshooting purposes



Endpoint Tile Description and In-Depth Look at the User Configurable Video Modes:



Genlock Mode

- Simulates a cable connection
- Display output on the receiver is 1:1 synchronized with the input signal from the transmitter
- Uncompressed: Less than 30 μ s latency / Compressed: Max. 120 μ s latency

Fast Switch Mode

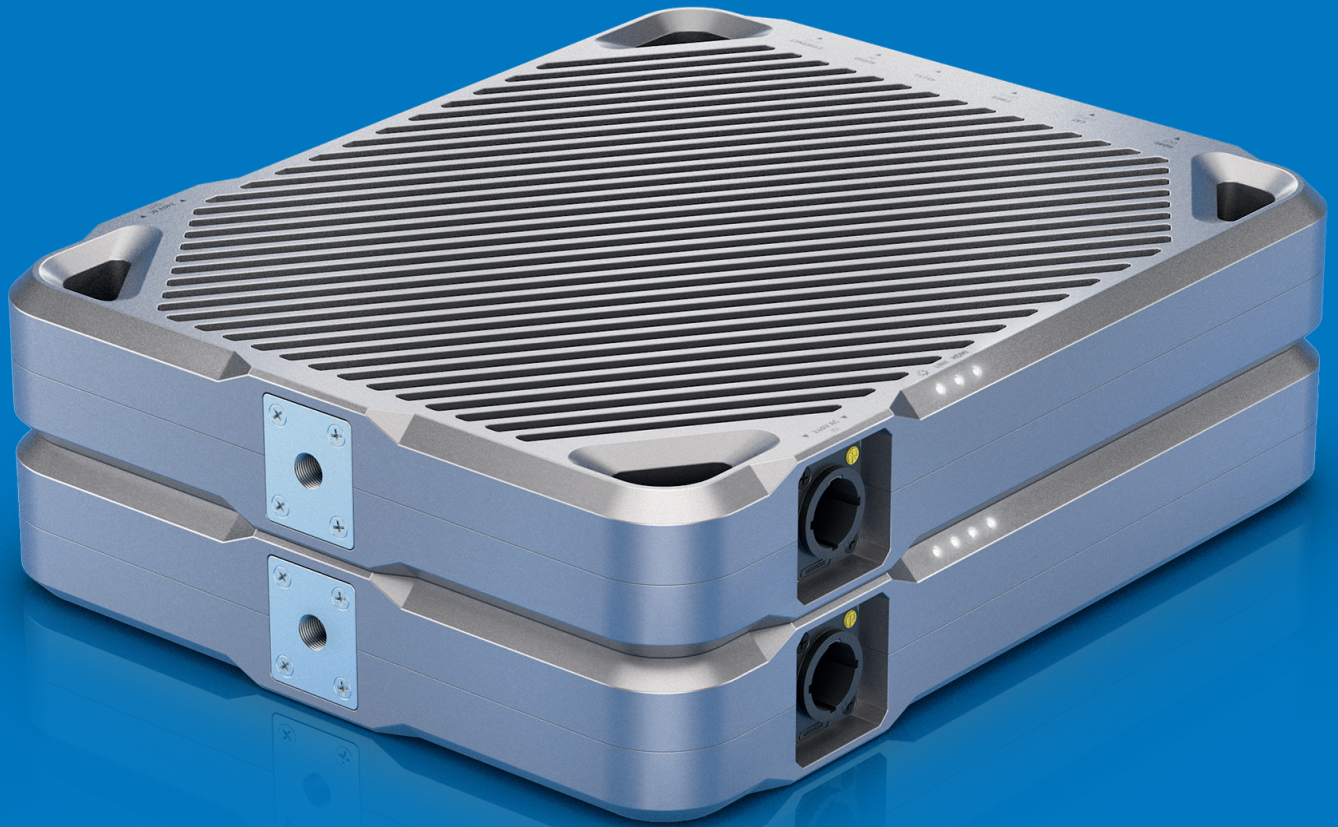
- Faster input source switch, seamless to the human eye
- Max. 2 frames latency, not genlocked to the input signal from transmitter
- The display connected to the receiver is synced to a video raster that sends a constant signal, so when a source switch occurs there will be no black screen or image stutter
- Output and frame rate from the receiver is scaled to the connected display device

Genlock Scaler Mode

- Combines the benefits of "Genlock" and "Fast Switching" modes
- Low latency and source locking from Genlock Mode
- Output resolution scaling (without frame rate conversion) Fast Switch Mode
- Video raster does not rely on the frame buffer, but is genlocked to the source
- This combination results in a minimal latency output with a different resolution than the source material

Videowall Mode

- A single source can be stretched across multiple displays
- The output from every receiver is scaled to the native resolution of the connected display
- Visual, graphically enhanced bezel correction, directly in the software UI



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